

Nursery Health Tracts, No. 4.

*Sound Teeth for
Children.*



Price Five Cents.

THIS series of "Nursery Health Tracts" is designed to meet the demand for various special articles, on important subjects, which have appeared in BABYHOOD. Articles thus reprinted will be furnished at 5 cents each, or \$3 per hundred, postpaid.

Those thus far published are: No. 1, SCARLET FEVER, by John M. Keating, M.D.; No. 2, DIET FOR YOUNG CHILDREN, by L. Emmett Holt, M.D.; No. 3, DIPHTHERIA, by Henry D. Chapin, M.D.; No. 4, SOUND TEETH FOR CHILDREN, by F. D. Leslie, M.D. Other numbers will be issued later.

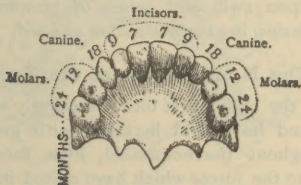
BABYHOOD PUBLISHING CO.,
New York.



HOW CHILDREN MAY HAVE SOUND TEETH.

BY FREELAND D. LESLIE, M.D.

WHAT is noticed more quickly, admired more, and met with less often in the present and rising generation than a good, sound set of teeth? Parents certainly would



NAMES AND POSITION OF TEMPORARY SET OF TEETH,
WITH AVERAGE AGE OF THEIR APPEARING.

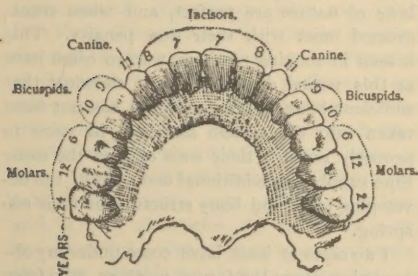
not digress from certain simple rules if they thought it would in any way add to the happiness of their children and prevent much needless pain. Numerous illustrations might be given to prove that nature did not provide teeth which were to decay as soon as they appeared above the gums, as in the cases of many children. The Indian in his uncivilized

state, living upon the crude substances which nature so abundantly provides, has been found to have had good teeth, as evidenced by the full and perfect sets seen in the old and decayed skulls exhumed in the various parts of our country. Wild animals have these organs perfect. The elephant, it is said, in his native haunts lives a hundred years and then has good teeth. Domestic animals, when fed as nature provides, have sound ones; but when man, for pecuniary gain, tries to improve on nature's laws, and has, for example, the cow fed upon swill and refuse of breweries and distilleries, her teeth are soon affected.

The Nourishment of the Teeth.

As the baby's first tooth is eagerly watched for and its arrival heralded with great joy throughout the household, little thought is paid to the forces which have united in showing it to us. The teeth, like all other organs of the body, must have their particular nourishment in order to sustain their individuality and develop themselves. When a mother intelligently gives special attention to the care of her child's teeth, she not only helps them, but strengthens all the other organs of the body, particularly the bony structure. We might, for convenience, divide the time in which our attention should be given to the teeth into two periods: the first that before,

the second that after, dentition. The first period does not commence at the birth of the child, but six or seven months before, as then the rudiments of the first or temporary teeth are said to be visible. We see that nature has thus early commenced to draw from some source nourishment for their development; and as the blood of the mother



PERMANENT SET.

circulates through the unborn, it is designed that she shall furnish these essential elements. As certain substances are known to be necessary for the healthy formation and maintenance of the teeth as well as for all other organs and tissues of the body, and as these are drawn from the blood, it naturally follows that they must be replaced in order that the system may stand the drain. Physiology teaches that the blood receives its vital parts

from the food and air taken into the system, and, acting as a vehicle, carries these elements to the various organs and permits each one to absorb the requisite amount and particular kind which it needs for its immediate necessity and future wants. If the proper nourishment is not supplied for the teeth in the right amount, defective ones are the result. The laws of nature are perfect, and when transgressed meet with their due penalty. This is seen in nursing mothers, who so often have at this period defective teeth, showing that sufficient bone-forming material has not been taken into the system and held in store to properly nourish their own and at the same time supply the additional demands of the developing teeth and bony structure of their offspring.

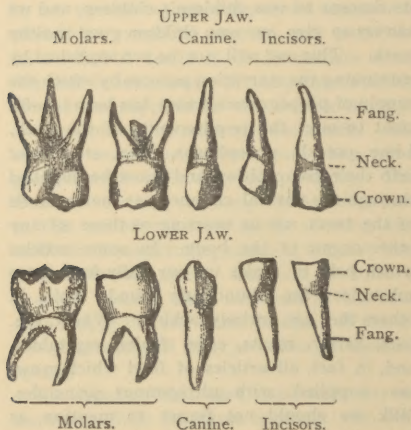
Two cases at least have come under my observation where the future mothers, who from early age had been addicted to a passionate indulgence in sweets, pastry, and the like, were first made aware of their condition by the unusual and excruciating pains of the teeth, even going so far as to necessitate the removal of some which had been filled years before.

Proper and Improper Articles of Food.

Can this state of affairs be obviated? is seriously asked. We do not hesitate to answer in the affirmative. We cannot prevent the

tendency which has been transmitted to us by our ancestors, but we can assist in preventing its descent to our children's children, and we can try to give our own children good healthy teeth. This end will not be accomplished by continuing the starvation process by which the supply of proper nourishment has been insufficient to meet the requirements of the teeth. Lime, potash, phosphorus, silex, etc., enter into their composition, and must be supplied through the natural channels, as the demands of the teeth are as exacting as those of any other organ of the body. In some articles which help to make up our daily food these substances are abundantly found, while in others they are entirely lacking. Wheat, rye, oats, barley, meats, eggs, fruits, vegetables, and, in fact, all articles of food which grow, are supplied with nitrogenous principles. Milk we should not forget to mention, as it is rich in all the ingredients in the right proportion to fulfill the requirements. Although the whole wheat and all other cereal foods contain carbonate and phosphate of lime, and traces of other earthy salts which help to form and nourish all bony tissues, yet they are in that part of the grain which in the bolting is so carefully separated from the starchy white centre and fed to the swine as bran. This leaves our most common and important article of food composed principally of

starch, and upon starch alone man cannot subsist. The whiter the flour, the freer from



TEMPORARY OR MILK TEETH—EXTERNAL VIEW.

bone-forming material and the greater the quantity of starch.

The Diet of the Mother.

The expectant mother should live on the most nourishing and best bone-forming foods. The nursing mother ought not to make any particular deviation from her accustomed manner of living, except that she should avoid

very acid and non-bone-forming substances. Her system will require more liquids than formerly, and this will be abundantly supplied if, a few minutes before nursing, she will drink a glass of pure milk. In the care of children, and particularly that part of it which relates to their feeding, the closer the dictates of nature are adhered to the better will be the result.

The Child's Diet.

What has been said in regard to the attention necessary in regulating the mother's diet will apply equally well to the child's, the great importance of more exacting attention being emphasized. Although the same substances are required to properly nourish and develop children's teeth as adults, yet certain important facts point out a particular course which practical experience has taught is not only well but necessary to follow in order to bring about the desired result.

The Advantage of Sucking.

In the first instance, in the development of the child we notice among other things, that the infant's mouth is more arched in proportion to its size than the adult's, and that teeth are also lacking, which shows that sucking, and not chewing, is the course required at this period. Again, we can see the wise forethought of nature in requiring the child to

nurse, thereby causing it to make movements of the mouth somewhat similar to those of mastication, and also creating an active stimulation of the salivary glands and an abundant supply of saliva after it is once established. The advantage thus gained by having the milk come in small amounts, as by sucking, can be readily seen, for the secretions of the mouth are given abundant opportunity of performing their preliminary functions so essential to perfect digestion.

Objections to Starchy Food.

Physiology teaches that the glandular system of the mouth, stomach, and digestive tract is in an undeveloped state, and does not secrete its fluids in sufficient quantities to digest starchy food until after the fourth or fifth month, and then only imperfectly. As most articles of diet abound in starchy elements, they cannot be taken into an infant's stomach and undergo the chemical changes necessary for their ultimate absorption into the system, but must, as foreign bodies producing colic, griping, etc., be forced through the entire digestive tract, not only irritating the mucous membrane, but, if many times repeated, weakening the digestive as well as other organs, so that they cannot perform the apparently single task assigned to them by nature.

The Child's Natural Food.

The food found to meet all the requirements of nature, and upon which the child thrives best, is the mother's milk. Except in unusual cases, milk should constitute the chief and only food of the child from the time of birth till the age of eight months, and from that time until three years of age it should be the principal article of nourishment. Could this fact, together with the necessity of regularity in feeding, be remembered, more children would live to see mature years. These laws, so perfect and simple, which have been laid down by nature, may perchance be disobeyed once, twice, or even more times with-

out evil effects discernible to the mother, and she may flatter herself that her child is stronger than those children who, after eating a piece of cooky or apple, vomit it up. If this course is



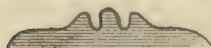
A. The first indication of a formation of a tooth, a groove, the inner surface of which ultimately is changed into the enamel of the teeth.

persisted in, however, the climax will come and the cause will be sought, until at last, to the satisfaction of all, it will be decided that the *teeth* are at the bottom of the evil! So stereotyped has this expression become that in the minds of many it suffices for a satisfactory explanation of three-fourths of the ills to which

children are subject during the dentition period. Little thought is given to the piece of pie or banana which was fed to the child, because others have given such things to their children without evil effects. Remember, however, the old adage of the straw and the camel's back.

The Relation of Proper Digestion to Sound Teeth.

Parents have frequently learned to their sorrow of the evil effects of an over-indulgence in sweets, but yet how often we see their children permitted most wantonly to overload and disarrange their stomachs, thus producing an abnormal condition of the secretions of the mouth which has an injurious effect on the teeth. It may be thought that this is laying down the rule rather strictly; but when we



B. Further development. The ridge in the middle is the foundation of the teeth, becoming divided into parts a little later on.

consider the power a child's stomach has for digesting such substances, and the consequences resulting when it is imperfectly performed, sufficient reason is given for thinking parents.

It may be asked what bearing this has upon the teeth of children. The answer is simply this: if the act of digestion is imperfect, the food is not properly assimilated, and therefore there is a deficiency in the quantity as well as

the quality of the food. The answer is simply this: if the act of digestion is imperfect, the food is not properly assimilated, and therefore there is a deficiency in the quantity as well as

the quality of the elements required to nourish the body. The amount of damage the teeth sustain from the lack of nutritive elements may not be perceptible at once, though naturally they suffer with the other organs. They differ in one great particular, however, in having no recuperative power—that is, a tooth once affected cannot become perfectly sound again.

Irrational and Rational Methods.

Two cases illustrative of the importance of having these laws studiously interpreted will be cited, as such are of-

ten met with by physicians. Mrs. A.'s first child was delicate from infancy, and only became robust and healthy after the period when

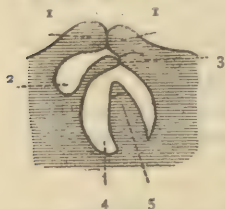
solid food was allowed. With the second, a little girl, the mother devoted, as with the first, her



C. The dividing of the groove makes a row of little sacs or follicles, 1, which develop into tooth-sockets; 2 is the tooth-pulp; 3 the opercula, or lids, which close the follicles.

entire attention to its wants. So much given up to its care was she as to be willing to sacrifice everything for its comfort; she even abstained from fruit, vegetables, and other solid food, or confined herself to a limited amount, for fear it might have some injurious effect

upon her milk. She did take, however, starchy foods, and excessively large amounts of cocoa-shells, catnip and beef teas, etc., upon the advice of a most solicitous and watchful mother. So decided were her convictions upon the propriety of this course that she could not



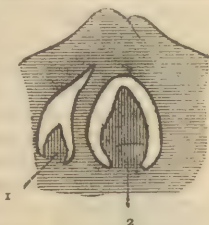
D. The lips of the groove, 1, 1, have closed, forming 2, the reserve cavity which will ultimately form a permanent tooth; 3, the lids closed, shutting up the follicle, 4, in which the temporary tooth, 5, is forming.

listen to a more rational method recommended, even after her own system had been drained and she prostrated, insisting upon giving the child the breast both night and day, as it appeared to her to demand it. After much difficulty and perfect assurance from me that no possible danger could

follow, the child was weaned at eighteen months of age, just one year later than her first one.

The result of this well-intended but ill-advised attention was the same as with her other child—that is, the teeth came along somewhat late, and immediately showed dark spots of discoloration; and now that the youngest child is two-and-a-half years of age, the required number have appeared, but all the incisors

ors are decayed even with the gums, and the others are following rapidly in the same course. It may be well to note that I was called to treat this child, before it was weaned, for what was supposed to be canker, but examination found the mucous membrane of the mouth red and swollen, rendering the act of nursing very painful to the child, and the cause was found to arise from ulceration of the two upper



E. 1 is the germ of a permanent tooth; 2 is the temporary or milk-tooth nearly developed.

central incisors. Although intelligent people, and many times assured of the injurious effects of this course, they were unable to make up their minds to take the necessary step which nature so plainly showed was demanded, although apparently convinced of its importance.

Mrs. B.'s child was given all the care and attention allotted the other, yet the mother was willing to follow the directions as herein laid down, with the result that her child's first teeth appeared at seven months; it walked at ten, eight months earlier than Mrs. A.'s child; and now, a trifle older than the other, has teeth as perfect as possible.

The Development of Teeth.

Having devoted so much space to the physiological care of children's teeth, it will be well to speak a few words in regard to the mechanical part. The teeth usually appear in pairs at intervals of from three to six weeks. Ordinarily the first to come are the two lower central



F. The milk-tooth cut through. 1, the permanent tooth below and behind it. Many of the permanent teeth exist before birth, and some have already begun to calcify at birth.

incisors, which appear between the sixth and eighth months; next the upper central incisors; then the upper lateral incisors, lower lateral incisors, first molars, canines, and back molars. At twelve months the child should have cut eight teeth. The "eye-teeth" (canines) should be cut between the sixteenth and twentieth months, and twenty, the whole number of deciduous teeth, should have pierced the gums soon after the second year.

This rule will be found to hold good when the bony and other solid structures of the body are perfect, though the time when the various teeth are cut may, and often does, vary on account of individual peculiarities rather than a low state of bodily health. If the child is

not constitutionally weak, and the mother has attended particularly to her diet, besides taking proper hygienic exercise and other necessary precautions previously mentioned, both for herself and child, in this and other articles in *BABYHOOD*, it will be more liable to follow the usual rule than the exception. Often mothers are seen glorying in the forwardness of their children because they have cut their teeth earlier than the usual time—say at three or four months. Instances are on record where children have been born with teeth. This should be looked upon as a freak of nature, as a physician would consider the premature cutting of children's teeth traceable to some inherited condition.

These first teeth should remain sound and do service till about the seventh year, when they will commence to be replaced by others differing from them in number, shape and size. This transition takes place not only in accordance with one of nature's most important laws, but in order that the extra space caused by the growth of the jaw may be filled.

The Importance of Proper Mastication.

Dr. Fothergill, one of the most exemplary writers on dietetics, in speaking of this growth of the jaws, points out the necessity of encouraging the masticatory effort by allowing crusts of bread to children when they have got the

teeth with which to chew or gnaw. He further urges that this subject should not be overlooked, as is often done, owing to the habit of giving cooked and prepared foods to children. At this important period comparative disuse of the masticatory muscles leads by an inevitable law to degradation of the organs, which also will be enhanced by premature brain-forcing at this period, which detracts the natural blood-current from the dental apparatus to the brain. From this starved condition, forced by disuse of the jaws, the teeth become deformed, of inferior quality and crowded, with the denture below the standard and readily eaten up by the organisms which are at work in dental caries.

The Functions of Enamel.

The tooth is composed of dentine, an ivory-like substance, which encloses the nerve elements and gives it form. The fangs, or the part which projects into the jaw, are covered with a bone-like substance called cement, while the crown, or that part above the gums, is protected by enamel, the most dense and brittle substance in the body. It was made thus dense, hard, and brittle that it might serve as a protection for the inner and more sensitive parts of the tooth, and if the proper nourishment is not supplied it will be thin and defective and more liable to be affected by external

influences. We would not expect a very thin piece of glass to withstand sudden changes of temperature without cracking, and yet we frequently subject the teeth to the greatest extremes. About the best example of this is when hot tea or coffee follows ice-cream or ice-water. As the glass and the enamel are composed of elements somewhat similar, these sudden changes, according to the same physical laws, would be as bad for the one as for the other. When once the enamel is affected, the gases and secretions of the mouth soon cause the inner and protected parts of the tooth to decay.

The Care of Teeth.

The crown is well formed before it pierces the gum, but it often takes months or even years for it to become hard and dense. For this reason more attention should be paid to the teeth of children than to those of adults. As soon as the teeth show themselves above the gums they should be gently rubbed with a piece of soft cloth dipped in cold water when the child is given its daily bath. Afterwards use a soft brush and rub the teeth from the gums down as well as across their grinding surfaces, in order to clean them perfectly. If they show signs of discoloration, a soap, which is prepared for the purpose and free from all obnoxious animal fats, may be used. When

the gums are soft and spongy use a little alcohol and water. By this means at the same time the cavity of the mouth may be cleansed and left in a good healthy condition. If this is persisted in regularly, the mother will be surprised to see how soon her little one will look upon it as one of the necessities of its daily toilet, and when old enough will assume the task for itself. As soon as signs of decay appear, a dentist should be consulted and the tooth filled; it should not be neglected until the cavity is so large and the pain so severe that extraction is necessary, as that will allow shrinkage and a narrowing of the socket, thus crowding the permanent teeth and causing lasting deformity.

Cautions Regarding the Shedding of the First Teeth.

The six-year-old molars are the largest in the mouth and are most essential to mastication. It is important that these should not be allowed to decay, as they are permanent and will not be replaced by others. Mothers can be sure that these have come when, after the fifth year, they can count more than five teeth on each side of each jaw. When it is time to shed the teeth they should not be decayed, but come out sound, with the second ones ready to take their places. It often happens that the second teeth appear before the temporary ones have

come out. Under such circumstances the first should be extracted and the permanent ones gradually pushed into place. Be careful to save the upper canines until they are ready to be replaced by others, as then the permanent ones will have space to grow in as they ought. Parents should not despair if, after all, the first teeth show decay, because if their attention is persistent the permanent ones may come and remain perfect, a great and lasting blessing to their children, and a satisfaction to themselves.

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